



Paropsisterna sexpustulata

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See BOIC Programme.

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- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organize excursions around the theme of invertebrates e.g. butterflies, native bees, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

MAGAZINE DEADLINES

If you want to submit an item for publication the following deadlines apply:

March issue – February 21 st	June issue – May 21 st
September issue – August 21 st	December issue – November 21 st

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COVER

Paropsisterna sexpustulata - Painting by Lois Hughes. Prints of this painting may be available from the artist. Ph. 07 3206 6229



FROM THE PRESIDENT

The seasons seem to come and go at a faster rate as we grow older but at the time of writing this report (August 23rd) we appear to have had an even shorter winter here in Southeast Queensland with temperatures that are well above average this week. The insects seem to believe that winter is over as the first Bottle Cicadas are calling in the late afternoon, Meadow Argus, Chequered Swallowtails, Blue Triangles, Lemon Migrants, Evening Browns and numerous small blues are on the wing while Common Crows, that have been present for months, have decided to commence laying eggs. Sugar ants have commenced nightly patrols and *Polyrachis* ants have started scouting away from their leaf shelters. Of course, there is still scope for winter to return in the coming weeks.....

In the middle of last year, Lois Hughes found a small beetle with red spots and decided she would like to paint it for a “cover story” in *Metamorphosis Australia*. Richard Zietek and John Moss were given the task of producing the story. Over a year later and after much research and consultation, the final results are published in this edition. It was worth the wait to read the text and to see Lois’ painting and the images by Peter Hendry and Russel Denton.

Many thanks to all the other contributors who will forgive me for making special mention of Murdoch De Baar’s article on Jewel Beetles and Wesley Jenkinson’s report on his detailed observations of the life cycles of two species of Grass-darts. Enjoy.

Best wishes **Ross**

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An Introduction to Paropsine Leaf Beetles : *John T. Moss and Richard Zietek*

Identification and brief description

These beetles belong to the family Chrysomelidae, subfamily Chrysomelinae, the largest subfamily in Australia, which includes some 750 species in 42 genera. They are in the tribe Paropsini, of which the commonly observed genera are *Dicranosterna*, *Paropsis*, *Paropsisterna* and *Trachymela* [the related genus *Chrysophtharta* Weise having recently been incorporated into *Paropsisterna* (Reid, 2006)]. Identification of adult paropsine leaf beetles to species level is difficult due to the lack of useful keys. Chris Reid (pers. comm.) defines paropsine beetles as “chrysomelines with elytra extended at the sides to hide the body in lateral view and which feed on eucalypts and wattles”.

Adult paropsines range in size generally from 4 mm to 18 mm and many species have quite colourful markings (which often fade after death) with patterned thorax and elytra. Adult beetles look rather like ladybird beetles, Coccinellidae, but the structure of the tarsi (feet) and antennae are different. Leaf beetle antennae are up to half as long as the body, filiform (slender) and usually uniformly multi-segmented. Ladybird beetle antennae are much shorter, have thickened (‘clavate’) tips and can be held tightly against the head and thorax. There are several more technical characters that better separate these two lookalike families which readers can access from other sources. Due to the high diversity of species and poor current knowledge of the taxonomy of the group, distributions of individual species are generally not recorded.

Some common examples

Some paropsine leaf beetles are major pests of eucalypt plantations and can cause serious defoliations eg *Paropsis atomaria*, *Paropsisterna cloelia* and *P. bimaculata*, this last “a notorious forest pest in Tasmania” (Lawrence and Britton, 1991). The eucalypt feeding *Paropsisterna sexpustulata* complex involves at least 6 species which are difficult to separate. At least two of these, *P. sexpustulata* (Marsham) and *P. beata* (Newman), are 10 to 14 mm long, ovate and convex (or dome-shaped), shiny black species, with six orange spots on the elytra (wing covers) and two on the thorax. The former species appears



Paropsisterna cloelia
Photo Russel Denton (RD)



to have at least two colour forms: the typical orange-spotted form and a yellow-spotted morph. Honan (2008) illustrates this latter colour form as *Paropsis sexguttata* and the Queensland Museum's 'Wildlife of Tropical North Queensland' illustrates the typical form as '*Paropsis sexguttata* complex'.



Paropsisterna sexpustulata (12mm long)
Orange-spotted form Yellow-spotted morph
Photos Peter Hendry (PH)

Dicranosterna, formerly placed in a separate tribe (Dicranosternini), contains several common Australian species. *D. picea* is a common wattle feeding species in southeast Queensland and northern New South Wales. It is often found on "Black Wattles" – *Acacia concurrens*, *A. leiocalyx* etc. At 14 mm long, it is one of our larger species. Hockings (1980) illustrated larva, pupa and adult as *Paropsis brunnea*. Peter Chew's 2004 CD-ROM 'Brisbane Insects and Spiders' illustrated it as *Paropsis immaculata*. However, Chris Reid reports that the author's more recent website correctly identifies the two common brown species, *D. picea* and *D. immaculata*. *D. circe*, at 11 mm, is also a wattle feeder. It has a common white form and a less common yellow morph. Hawkeswood (1987) illustrated it as *Paropsis pedestris* Blackburn. In southeast Queensland it feeds commonly on Hickory Wattle (*Acacia disparimma* – was *A. aulococarpa*).



Dicranosterna picea - 14 mm long adult and larva (RD)





Figs. 1, 2 & 3 - *Dicranosterna circe* (adults 10 mm long) Fig. 4 - Larva Figs. 5 & 6 – Pupae
Photos - Figs. 1,4,5&6 (PH) Figs. 2&3 (RD)

Lifecycle

Eggs are laid directly onto leaves or stems near new growth, usually in patterns characteristic of individual species, either singly, or end to end in a line, or side by side in rows or in a collar around a leaf stem. Eggs are vulnerable to predators such as ladybirds, predatory bugs and tiny parasitic wasps. Newly hatched larvae feed gregariously (in a group), at first, chewing patches on the leaf surface. As they mature they may stay together or feed by themselves. Fully developed larvae move down the



tree to pupate in the soil or leaf litter. According to Gunter Maywald (pers. comm.), *P. sexpustulata* feeds on eucalypt foliage and over-winters as adults under loose bark at the base of the host trees. Moore (1996) reported this (and the sibling species *P. beata*) as feeding “in summer on various species of feathery-leaved wattles, and out of season, are often to be found hibernating under loose bark of standing gum trees”. Lois Hughes (pers. comm.) has captive individuals that are currently feeding on the eucalypt leaves that they were found on! It is our opinion, and that also of Dobrosak (2001), that paropsine species can be found on trees and shrubs of other species adjacent to their actual host plants. This would explain the apparent anomaly of Moore, 1996. Reid (2006) reviewed host records, but not all species hosts were identified.

Many of these beetles are relatively long-lived and take readily to captivity. They can make charming and colourful little pets! Some *Paropsis* larvae defend themselves by producing hydrocyanic acid from glands in the abdominal segment 8. Many adult beetles also produce this chemical, so care should be exercised when handling these insects.

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Further Information

- Chris Reid, Australian Museum & ABRS websites –
www.faunanet.gov.au/faunakeys/chrysomelinae_intro.htm
www.environment.gov.au/biodiversity/abrs/online-resources/fauna/afd/taxa/Chrysomelinae
- DPI& F notes - Leaf Beetles (Paropsines) –
http://www2.dpi.qld.gov.au/hardwoods_qld/9313.html
- Brisbane Insects - Leaf Beetles / Paropsisterna -
http://www.brisbaneinsects.com/brisbane_leafbeetles/EucalyptusLeaf4.htm



Photographs – Russel Denton and Peter Hendry

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Dr.Chris Reid - Australian Museum, Sydney, for reviewing the mss.

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**Gallery of leaf-eating beetles, family Chrysomelidae, from Brisbane area
[photographs by Russel Denton (RD)] and Bolivia Hill NSW [photographs by
Peter Hendry (PH)]**



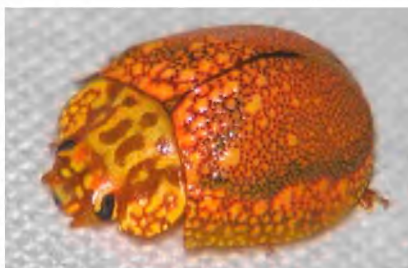
Calomela crassicornis (RD)



Calomela pallida (RD)



Celtis Leaf Beetle – *Menippus cynicus* (RD)



Chrysomelid sp. (approx. 12 mm long) (PH)



Paropsisterna sp. (approx. 7 mm long) (PH)



Paropsis maculata (10 mm long) (RD)





Paropsis obsoleta (RD)



Paropsis variolosa (RD)



Paropsisterna 8-maculata (7mm long) (RD)



Paropsisterna sp (16mm long) (PH)



Paropsisterna nobilitata complex (approx. 7mm long) (PH)



Paropsisterna sp. (RD)



An Interesting Record of the Hawkmoth *Macroglossum prometheus lineatum* Lucas (Lepidoptera : Sphingidae) from the Northern Territory : *David Lane*

Australia contains a rich fauna of hawkmoths (family Sphingidae) with around 70 species currently recognised. Within Australia the genus *Macroglossum* Scopoli was the subject of a revision by Max Moulds in 1985, and currently contains 13 Australian species. The world fauna of moths belonging to this genus has a wide distribution ranging from Africa and Europe through Asia, and extending to the Indo-Australian region. It is especially rich in species in New Guinea and Indonesia.

Macroglossum species are often referred to as Hummingbird Hawkmoths, due to their ability to hover in front of flowers for extended periods whilst they actively feed from



Fig. 1 Adult *M. prometheus lineatum*

the available nectar source, utilising their well developed proboscis, or tongue. They have a well developed “fan tail” of expansible hair-like brushes on the lower abdominal segments, which amongst other purposes serve as a braking and control agent in flight. This behaviour has led to their popular observed identity as being allied to miniature Hummingbirds. Various species may be active during the day or at night –

most however are nocturnal, with a preference to begin feeding from flowers around dusk. Some are noted migrants, with one particular species, *Macroglossum micaceum micaceum* Walker, having been observed in conspicuous numbers in northern Queensland and arriving in south east Queensland and northern NSW in following weeks. Another species, *Macroglossum vacillans* Walker, can be quite prolific in numbers during certain wet summers in northern Australia, particularly in close proximity to its larval foodplant *Strychnos* (Loganiaceae) species. It appears to migrate from northern areas in a southerly direction over a period of several nights, with considerable numbers of adult moths turning up at mercury vapour light traps in areas where no suitable foodplants grow.

During a visit to Darwin in March 2009, many *Macroglossum* larvae were found feeding on a small tree *Morinda citrifolia* L. (Rubiaceae) at several areas, including



East Point and Leanyer. These larvae were reared through to adult moths which proved to be *M. prometheus lineatum* Lucas. Final instar larvae leave the foodplant trees to pupate and web together several dead leaves on the ground at a convenient sheltered location, in which they pupate. Larvae of *M. prometheus lineatum* have also been found feeding on *M. citrifolia* at Silver Plains, near Coen, North Queensland. Adult moths of *M. p. lineatum* have been collected from Cape York to Mackay in Queensland, as well as New Guinea and adjacent islands. The nominal subspecies ranges from Sri Lanka and India, through Malaysia, Indonesia and the Philippine Islands (Moulds 1985).

M. prometheus lineatum has previously been recorded from the Northern Territory at Rimbija Island, Cape Wessel (Moulds 1985). These records from Darwin confirm the species distribution further to the west along the top coastal area of the Northern Territory. The attached figures show the adult moth (Fig 1) and all larval instars (first to fifth instar, Figs 2-6) as well as the pupa (Fig 7).



Fig. 2 - 1st instar Fig. 3 - 2nd instar Fig. 4 - 3rd instar Fig. 5 - 4th instar Fig. 6 - 5th instar Fig. 7 - Pupa

Photos David Lane



Reference

Moulds, M.S., 1985. A review of the Australian hawk moths of the genus *Macroglossum* Scopoli (Lepidoptera : Sphingidae). *Australian Entomological Magazine* 12(5): 81- 105

Jewel Beetles (Coleoptera: Buprestidae): some views and notes : **Murdoch De Baar** debaar@powerup.com.au

Jewel beetles are some of our most colourful insects, often displaying stunning metallic blues and greens, with red and yellow splashes, whilst flashing around in the bright sun. Further to the 1000-odd named species, there are also many undescribed species in Australia.

‘Jewels’ or ‘rough diamonds’? Most of these beetles are stem or trunk borers (where the general biology is known), however little is known about the majority of them, other than their original anatomical descriptions. We do know about our Hoop Pine jewel beetle, *Prospheres aurantiopictus* which has larvae that sustain slowed development of up to 25 years in seasoned timber, because it pops out under your nose, from your prized pine table that you paid good money for! However adults are not able to re-infest seasoned timber, so exit holes should be packed with wood filler and painted over.



Fig. 1. Hoop Pine jewel beetle chewing foliage of a Hoop Pine (Photo M. Ramsden)



Fig. 2. Hoop Pine jewel beetle pictured shows a yellow-spotted form (Photo M. Ramsden)

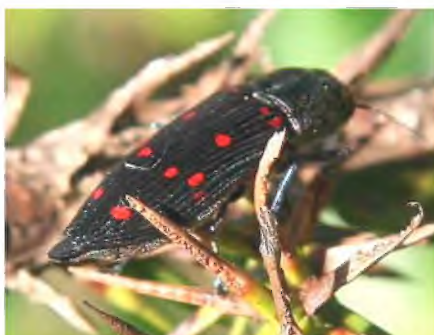


Fig. 3. Hoop Pine jewel beetle pictured shows a red-spotted form (Photo M. Ramsden)



Michael Ramsden, a Plantation Health Officer of the Forestry Plantations Queensland, has photographed the three adult colour forms of the Hoop Pine jewel beetle (Figs. 1, 2, 3). He has observed adults chewing Hoop Pine foliage at Imbil State Forest in southern Queensland.

Pseudotaenia waterhousei (Fig. 4) is a large 30 to 50 mm long bronze green species with powder yellow overlay, which bores into the trunks of wattle trees *Acacia leiocalyx* at Dunmore State Forest via Cecil Plains, south Queensland. The larvae which can be 75 mm long, cause trees to snap in the middle, giving an appearance of storm damage, particularly considering that activity is often present on elevations or ridges. The species has also been noted at Barakula State Forest via Chinchilla, Queensland and according to literature, the species is known from central western areas of southern New South Wales to southern Queensland. Adults, when disturbed, often fly from trunk to trunk and create a loud buzzing as it flies out from behind you. The species shows a preference to wattle thickets. A larva measuring 90 mm long, collected by Forest Pathologist Geoff Pegg, from a Brigalow stem *Acacia harpophylla*, near Tambo, south western Queensland, was probably ***Pseudotaenia ajax***, a very similar beetle in appearance measuring about 60 mm as an adult. E. Adams in the News Bulletin of the Australian Entomological Society, Nov. 1966, discusses how he used a rifle to bring down his first specimens of *P. ajax* from the side of Brigalow trunks at Edungalba near Duaringa, Queensland. He later observed oviposition having occurred on damaged trunks. Mabel Hobler (as Mrs.F.H.Hobler) who also lived in the Duaringa area, wrote in the Queensland Naturalist (1925) that she observed oviposition, larval tunnelling and adults emerging from the trunks of Brigalow.



Fig. 4. The jewel beetle ***Pseudotaenia waterhousei*** near its emergence exit hole on an *Acacia leiocalyx* trunk at Dunmore State Forest, south Queensland, 31 Dec. 1985.
(Photo Murdoch De Baar)

At 40 to 50 mm, ***Stigmodera fornumi*** (Figs. 5, 6) is a spectacular beetle adorned in combinations of green and yellow. Normally unseen in set museum specimens, are brilliant green flashes from the upper abdomen when the beetle is in flight (Fig. 5). A loud buzzing overhead, heralds an incoming adult about to land on some paperbark



tea-tree (*Melaleuca*) or eucalypt flowers during the December/ January period at Dunmore State Forest, via Cecil Plains, south Queensland. These beetles often land too high in tree canopies to be closely examined. This jewel beetle is known from South Australia to southern Queensland, however, within this “wide distribution”, its actual presence is probably only in a narrow disjointed band and little else is known about this chunky, showy jewel. It is a shame that museum specimens’ colours dull somewhat, so the only way to fully appreciate their brilliant lustre is from photographs or under natural conditions of around 40 degrees C. and lots of flies!



Fig. 5. Upper surface and upper abdominal views of the large jewel beetle *Stigmodera fortnumi* from Dunmore State Forest, southern Queensland, 4 Jan. 1986, highlighting its magnificent colours.
(Photo Murdoch De Baar)



Fig. 6. Underside view of the large jewel beetle *Stigmodera fortnumi* from Dunmore State Forest, southern Queensland, 4 Jan. 1986, highlighting its magnificent colours of metallic green, yellow and deep blue. (Photo Murdoch De Baar)

Curis viridicyanea (Fig. 7) is only 15 to 20mm long, but makes up for its size with stunning metallic greenish gold. Some specimens are an equally brilliant blue. These beetles can also be seen at Dunmore S.F., via Cecil Plains, south Queensland, on *Melaleuca* foliage or flowers. However, little is known about them and they are not often seen. The recorded distribution of this species is from northern New South Wales to southern Queensland, probably mainly in the *Callitris*, *Melaleuca* environments.



Fig. 7. A bluish-green colour form of *Curis viridicyanea* on Paperbark Tea tree flowers.
(Photo Murdoch De Baar)



Diadoxus erythrurus, the Cypress Pine jewel beetle (Fig. 8) oviposit into stressed and/or burnt or damaged cypress pine (*Callitris spp.*) trees, or logs that are freshly cut and not hauled to the mill for processing quickly enough. This is referred to as a log hygiene problem. The larvae tunnel under the bark and into the cambial layer where they feed, occasionally penetrating a little further. The larval development is slowed in seasoned timber, but emergences after 2 years are rare. As for the Hoop Pine jewel beetle, the exit holes can be plugged with wood filler and painted over, as the adults are unable to re-infest the seasoned timber. Also, as for the Hoop Pine jewel beetle, we would know little about this beetle if it did not pop out under your nose, from your prized polished cypress timber supposed to be “borer resistant”. The “true-wood” of cypress is reasonably borer resistant, but sometimes pupation chambers are also cut into this wood.



Fig. 8. Cypress Pine jewel beetles *Diadoxus erythrurus* on a cut trunk of a Cypress tree *Callitris glaucophylla*. (Photo Murdoch De Baar)

The Cypress Pine jewel beetle has a wide distribution from southern West Australia across to Queensland and includes the Moreton Bay islands in southeast Queensland, where I have observed it flying around *Callitris columellaris* foliage.

Occasionally in Brisbane, ***Stigmodera goryi*** (Fig. 9) cuts a “mean exit hole” in a stressed Grey Gum (*Eucalyptus propinqua*) trunk. This 35 mm or so jewel beetle is not as brilliant as some of its relations but is still attractively adorned with yellow wing covers (elytra). Within Brisbane, specimens have been recorded at Bardon, Long Pocket and Bowen Hills, although it’s distribution is mainly coastal New South Wales and Queensland. Adults are attracted to flowers of *Leptospermum*.



Fig. 9 *Stigmodera goryi* from Long Pocket in Brisbane 20 Dec. 1986 (Photo Murdoch De Baar)



Jewel beetles have been very popular with amateur entomologists, so it is very surprising that so many biologies are poorly known. The emergences of some species are initiated by wild storms or extended wet weather, which can make observations uncomfortable and driving home through muddy roads hazardous, particularly if that road becomes a tributary of the local creek! Obviously the tunnellings of most jewel beetle larvae rarely catch our attention, otherwise entomologists' extension loads would blow out of all proportion. The reason for this is that activity often occurs in natural environments, sometimes in remote areas, in noncommercial tree trunks, or at low levels in commercial tree species. Some emergences are from old dying trees ignored as a timber source and a number of jewel beetles are known to bore down into the roots of trees. It is difficult for the amateur entomologist to cut and carry home billets from those dying trees that may have jewel beetle activity. It is also known that some jewel beetles can be observed in numbers one season and then not be seen for years, save perhaps a couple of specimens. The explanation for this is poorly understood, but perhaps it's to do with long-lived larvae and synchronised larval development. In some countries jewel beetles are used as jewellery.

Some **adult jewel beetles** are very difficult to observe, as they prefer to remain on the topmost flowers of tall trees and some specialists have climbed trees, with some success, to try to overcome this problem. Just consider: smooth-barked *Angophora* (Myrtaceae) vigorously attract jewel beetles to their flowers, are extremely slippery in rain and are notorious branch droppers. Do you still want to find out what's on the topmost flowers?!#

Life History Notes on the Narrow-brand Grass-dart, *Ocybadistes flavovittata flavovittata* (Latreille, [1824]) and the Greenish Grass-dart, *Ocybadistes walkeri sothis* (Waterhouse 1933) Lepidoptera: HesperIIDae : *Wesley Jenkinson*

The two most frequently encountered species of *Ocybadistes* butterflies within South East Queensland suburban gardens are *Ocybadistes flavovittata flavovittata* (Narrow-brand Grass-dart), and *Ocybadistes walkeri sothis* (Greenish Grass-dart), with the latter species being more geographically widespread and generally more numerous. (Not be confused with the adults of two other similar looking species from the *Tractrocera* and *Suniana* genera also breeding in my garden!)

Many butterfly enthusiasts overlook the smaller hesperiids. This is often because of their generally small size, presumed lack of vibrant colour and the degree of difficulty to correctly identify the adults. However, they are interesting small critters to have darting around the garden.





Ocybadistes flavovittata flavovittata (Narrow-brand Grass-dart)



Ocybadistes walkeri sothis (Greenish Grass-dart)

In my garden, at Beaudesert, I have observed several females of the two species ovipositing their eggs singly, with their preference for the underside of a leaf. Fisher, 1978, documented that females of *O. w. sothis* oviposit eggs singly on the upperside of leaves.

On narrow leaf grasses the females often settle on the leaf top and curl the abdomen below the leaf to oviposit. I have watched a female *O. w. sothis* ovipositing on a wide leaf grass, the exotic Green Panic *Megathyrus maximus* (formerly *Panicum maximum*). She settled on the upper surface of the leaf and then crawled below the leaf. She then positioned herself parallel along the leaf and laid an egg tightly next to the midrib.

Having raised several adults of the two species from eggs, at different times of the year, I have observed the habits of the immature stages are very similar, but they do show slight differences in their physical appearance.

The eggs of both species were similar in size and shape, being dome shaped, smooth (with a very fine pattern) and with an approximate size of 0.5 mm high x 0.8 mm wide.



Egg of *Ocybadistes flavovittata flavovittata*

Several eggs were collected from a female *O. f. flavovittata*. They were pale green in colour when laid and remained this colour throughout their duration, unlike the colour change seen in maturing eggs of *O. w. sothis*.



Egg of *Ocybadistes walkeri sothis*

Several eggs were also collected from a female *O. w. sothis*, which were creamy-white when laid. After two days the colour had



gradually changed to cream and the eggs had developed a broken, pinkish-red lateral band and an apical spot.

Several larvae of the two species were raised in captivity and they had very similar habits. Newly emerged larvae consumed most of the eggshell after emergence and later formed a small cylindrical shelter, approximately 3-4mm in length, towards the leaf apex of the host plant. To do this they chewed small transverse cuts from the outer edge of the leaf towards the midrib and then curled the outer edge of the leaf inwards by tensioning silk threads forming the cylindrical shelter. Feeding larvae consumed both sides of the leaf margin distal to the shelter, stopping at the leaf midrib. This caused the cylindrical shelter to hang and the larvae ate from the lower part of the shelter. As the larvae grew and consumed most of the leaf and shelter, they constructed a new shelter to accommodate their larger size. When raised on thin leaf grasses the larger larvae stitched several leaves together with silk to form the shelter. The larvae remained inside the silk-lined shelter during the day and emerged chiefly at dawn and dusk to feed. (Fisher, 1978, described similar larval behaviour for *O. w. sothis*)

Larvae raised indoors occasionally constructed their shelters and fed briefly during daylight hours.

Larvae of both species completed five instars and attained a length of approximately 25mm.



1st & 5th instar larvae of *Ocybadistes flavovittata flavovittata*



1st & 5th instar larvae of
Ocybadistes walkeri
sothis





Pupa of *Ocybadistes walkeri sothis*



Pupa of *Ocybadistes flavovittata flavovittata*

In captivity the pupae of *O. w. sothis* were found inside the final larval shelter. (As noted by Fisher, 1978.) The posterior end of the final instar shelter was stitched closed and the anterior end was left slightly open for the adult to emerge. The three pupae of *O. w. sothis* raised in captivity had a fine, white, waxy powder coating on their surface. This powder was absent from all of the *O. f. flavovittata* pupae raised. Pupae of both species measured 15 mm in length

When raised in captivity *O. f. flavovittata* eggs hatched in 10 days, larval duration was 54 days and pupal duration 27 days - the life cycle being completed in 91 days. (From 27th April 2008 to 27th July 2008.)

Likewise *O. w. sothis* eggs hatched in 12 days, larval duration was 66 days and pupal duration 10 days - the life cycle being completed in 88 days. (From 9th September 2006 to 26th November 2006.)

At Beaudesert, I have adult records for both species during eleven months of the year, with possibly three or four overlapping generations per year. Adults are fewer in number during the cold winter months and absent in July.

I have discovered that, locally, a commonly used host plant of *O. f. flavovittata* is the native grass Green Couch (*Cynodon dactylon*). Undoubtedly, other species of soft grasses are utilised as larval host plants, including species known to be used by *O. w. sothis* as listed in Braby, 2000, and Moss, 2005.

The wingspan of adults of both species show slight size variation but average approximately 20mm for both sexes. The size and shape of the orange wing markings also show slight variation for both sexes of the two species. The correct identification of the adults can cause some grief, however examination of the forewing sex-scales should identify the males. The females can be quite difficult to place and examination of the genitalia is the best guide. The male sex brands are illustrated in three historical books by Common and Waterhouse and two more recent books by M.F. Braby.

The flight pattern and habits of the adults of both species are very similar. Typically both sexes settle on the upperside of grass leaves to bask in sunny conditions. The males of both species typically defend small territories, perching on grass leaves and



engage in very rapid chases. The adults are readily attracted to the flowers of a wide range of native and exotic plant species.



Typical basking stance of a male *Ocybadistes walkeri sothis*



Mating pair of *Ocybadistes walkeri sothis*

Photos Wesley Jenkinson

References:

- Braby, M.F., 2000. *Butterflies of Australia – Their Identification, Biology and Distribution*. vol 1. CSIRO Publishing
- Fisher R.H. 1972. *Butterflies of South Australia*. Government Printer, Adelaide S.A.
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The Flame Flatwing (*Austroargiolestes amabilis*) : Ross Kendall

The Flame Flatwing is a beautiful damselfly usually 42-45mm long, found near streams in dense montane rainforest in southern Queensland and coastal New South Wales.

I have observed males in an open sunny patch 100 metres from a creek on the upper section of Branch Creek track, Bellthorpe Forest, in summer. This spot in the Conondale Range is at an altitude of 370m at 26°52'34" S, 152°42'6" E.

Mid morning on 10th March 2007, with the temperature around 27° we found females actively ovipositing on Broken Bridge



Female Flame Flatwing ovipositing



Creek at the eastern end of Bellthorpe Forest. This is at an altitude of 470m at 26°49'30"S, 152°44'12"E. The area has good coverage of rainforest and the creek was running freely.

One female was seen ovipositing in moss close to the water and the one pictured was busy laying eggs in crevices on a log about half a metre above the water. I have included a close up of the tip of her abdomen showing the ovipositor. It would be an interesting challenge to collect some eggs, hatch them and raise the nymphs through to adulthood as the juvenile stages of this species are unrecorded.



Tip of female abdomen

Photos Ross Kendall

References:

Günther Theischinger and John Hawking, 2006. *The Complete Field Guide to Dragonflies of Australia*. CSIRO Publishing, Collingwood Vic.

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4th Biannual Moth Meeting-Canberra 2009: Peter Hendry

I had the pleasure of being invited to the 4th biannual moth meeting, held at the CSIRO's Division of Entomology in Canberra, over the weekend of the 1st-2nd August 2009. I would have paid good money just to be a fly on the wall, but to be able to participate was a wonderful experience!



Delegates to ANIC moth meeting

The meeting was an informal affair, with a few short talks on the Saturday afternoon. Some of the subjects covered included Max Day's work on the Scribbly Gum Moth, showing the possibility of there being some twenty plus species involved. John Hawking spoke of his work to date revising the Crambidae subfamily Acentropinae. These are the moths that have aquatic larvae. Michael Braby took us on a tour of the Northern Territory museum in Darwin. Donald Hobern and Nick dos Remedios from "Atlas of Living Australia" spoke of the web portal they are setting up to hold metadata on all Australian animal species and



Don Sands talked about his concerns of controlled burning on the environment. This was further dealt with in a presentation and discussion on the Sunday morning.

On a personal note I was delighted to be able put names on some of the moths in my collection with assistance from Ted Edwards, John Hawking and Bart Hacobian and being able to search through the Australian National Insect Collection. It was wonderful just to pick up on the discussions being held amongst delegates and Len Willan's helpful tips on photography. The highlight for me was a one on one demonstration on dissection of moth genitalia by Marianne Horak. This has eased my fears a bit and I certainly intend to set myself up and give it a go.

Marilyn Hewish, in the absence of Peter Marriott, launched the second volume of *Moths of Victoria* (see review in this issue). Marianne announced that the boys from "Atlas of Living Australia" had taken over the web hosting of "Australian Moths on Line". It can now be found at: <http://www1.ala.org.au/gallery2/> The site now includes all of the named Tortricidae, including their relative sizes.

Until 2011, happy nothing.

Cuckoo Wasps (Hymenoptera : Chrysididae) : *Peter Hendry*



Cuckoo Wasp (Photo Peter Hendry)

In our last magazine (Issue No. 53 June 2009), Densy Clyne wrote of her observations of the Mason Wasp. In the article she mentions a parasitoid wasp in the genus *Stilbum* had been seen near the Mason Wasp nest.

I had the opportunity to photograph one of these wasps while it crawled up and down the brickwork of my house. It was obviously looking for mud wasp nests, which are often created against the mortar between the bricks.

These Cuckoo Wasps belong to the family Chrysididae that contains four subfamilies, Amiseginae, Chrysidinae, Cleptinae and Loboscelidiinae. Of these Cleptinae only occurs in the Northern Hemisphere. The Amiseginae and Loboscelidiinae parasitise the eggs of Phasmids (Stick Insects). The Chrysidinae parasitise wasps in the families Sphecidae and Vespidae.

The photo above is of a member of the subfamily Chrysidinae. They can be either metallic green, blue, violet or red. They have the ability to roll into a ball if attacked



by the nest-building wasp. The larvae either eat the other wasp's larvae or eat the food provided by the other wasp for its larvae.

AT THE LIGHT TRAP

The Return of the Crambidae : *Peter Hendry*

I spent the Easter weekend of 2008 on my bush block west of Bundaberg and reported in the June 2008 issue this magazine on 'The Night of the Crambidae'. This was when, in one night, I had 15 different species of Crambidae moths come to light. This last Easter (2009), on my return to the same site with a bit more equipment, I was able to run two light traps about one and a half kilometers apart. Unlike last year, no one night proved better than the next, but I was able to pull in 24 different species of Crambidae over three nights.

Of these 24 species I have been able to put names to 22. Four of these belong to the subfamily Acentropinae; the remaining 19 belong to the subfamily Pyraustinae. While at the recent moth meeting in Canberra I met with John Hawking who is revising the Acentropinae. He was particularly interested in my specimen of *Elophila aristodora* (Turner, 1908) {wingspan c 11mm}. The only other material of this species he has available for his



Elophila aristodora



Parapoynx polydectalis



Parapoynx villidalis

research is over 30 years old and he is having trouble extracting a complete DNA sequence. Arrangements are being made for me to send him material from my specimen. The Acentropinae are known for their aquatic larvae. John tells the story that while on a field trip with Mike Halsey, they witnessed a female



Acentropinae moth dive into the water, swim under a rock and after some time re-emerge. On turning over the rock they found a freshly laid clutch of eggs!

The other 3 Acentropinae all belong to the genus *Parapoynx*. These were *P. polydectalis* (Walker, 1859) {wingspan c 14-20mm}, *P. stagnalis* (Zeller, 1852), which also made an appearance at Easter 2008 and *P. villidalis* (Walker, 1859) {wingspan c 17mm}. Apart from knowing these moths have aquatic larvae, I could find nothing else on their biology. I am eagerly awaiting the completion of John's work.



Glyphodes canthusalis



Archernis callixantha

Some of the more spectacular Pyraustinae to appear included *Archernis callixantha* Meyrick, 1886 {wingspan c 20-23mm}. I have also encountered this species west of Babinda in north Qld on the 23/10/2008 and at home at Sheldon, Redland City east of Brisbane on the 20/04/2007. It occurs from Cape York to northern NSW and Indonesia (Common 1990).

Glyphodes canthusalis Walker, 1859

{wingspan c 25mm} was a first time encounter. It also has a distribution from Cape York to northern NSW (Common 1990). It is listed on the web page

<http://hk.geocities.com/pyralidaetw/pyra.30.htm> as also occurring in China, India, Nepal, Borneo and Indonesia. *Nausinoe pueritia* (Cramer, [1780]) {wingspan c 25-30mm} with its long abdomen, made its second appearance on the block. The first



Nausinoe pueritia





Tatobotys biannulalis



Pycnarmon meritalis

was on the 8/11/2007 and I have also collected it seventy-odd kilometers NW of Mackay. Its distribution covers the Northern Territory, Cape York to northern NSW as well as India, Sri Lanka and Indonesia (Common 1990). With an equally impressive abdomen, though far less ornate, is *Tatobotys biannulalis* (Walker, [1866]) {wingspan c 17mm}. In Fiji the larvae have been found scavenging in debris at the base of rice stools and it is suspected they feed in similar situations in various grasses. Pupation takes place within a frass-covered cocoon at the stem base (Hinckley 1964). *Pycnarmon meritalis* (Walker, 1859) {wingspan c 14mm} was another first time visitor.

The remaining specimens of Pyraustinae to come to light this Easter (but not figured herein) were *Eurrhynchos bracteolalis* (Zeller, 1852), *Eurrhynchos tricoloralis* (Zeller, 1852), *Herpetogramma licarsalis* (Walker, 1859), *Maruca vitrata* (Fabricius, 1787), *Metasia tiasalis* (Walker, 1859), *Metoea foederalis* (Guenée, 1854), *Nacoleia rhoealis* (Walker, 1859), *Notarcha aurolinalis* (Walker, 1859), *Omiodes diemenalis* (Guenée, 1854), *Parotis* sp. (Walker, 1859), *Pyrausta testalis* (Fabricius, 1794), *Rehimena surusalis* (Walker, 1859) and *Spoladea recurvalis* (Fabricius, 1775).

It was interesting to note that of these species, the most recently named is *Elophila aristodora* (Turner, 1908) with the other namings dating back to *Spoladea recurvalis* (Fabricius, 1775).

Photos Peter Hendry

References:

- Common, I.F.B. 1990. *Moths of Australia*. Melbourne University Press
 Hinckley, A. D. 1964, Ecological Notes on the Larvae of some Pyraloid Moths In
 Fiji, *Pacific Insects* 6 (2) : 234-241



Moths of Victoria Part 2 : reviewed by *Peter Hendry*



The second in this series of booklets attempting to illustrate all of the moths that occur in Victoria has just been released. It is by Peter Marriott and his team at the Entomological Society of Victoria and covers the superfamily Noctuoidea.

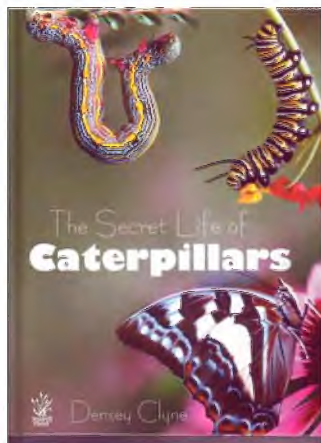
Six of the seven Noctuoidea families occurring in Victoria are covered. These are Oenosandriidae, Notodontidae, Lymantriidae, Arctiidae, Herminiidae and Nolidae. The booklet is well set out with a colour tab on the top right corner, being a different colour for each family. A pinned specimen of each moth is shown and a scale bar at the bottom of the page gives the reader an idea of its size. There are many photos of live moths, pupae, larvae and eggs. With over 170 species illustrated and the fact that many of these moths have a larger

distribution than Victoria, this booklet is a must for anyone interested in the moth lepidoptera of Australia

As with Part 1, this booklet contains a CD, which in this case includes another 300 pages of images and information. The CD contains information on the biology and distribution of each species, adding over 500 images. There are several other items on the CD, being a glossary, a checklist of the included moths, a list of moth families with a brief description, updates to part 1, a look into the future with a description of what will be on parts 3 and 4 and a note on how to stay informed of the progress and how to receive updates.

All in all it is a great effort. For those wishing to purchase a copy you can contact Peter Marriott at vicmoth@entsocvic.org.au or write to Ian Endersby, 56 Looker Road, Montmorency, Vic. 3094





The Secret Life of Caterpillars by Densey Clyne : reviewed by *Lois Hughes*

I can think of no more appropriate way to introduce this delightful book, than by using Densey's own words.

“What exactly is a caterpillar? Are caterpillars just greedy, guzzling grubs? Is there more to them than being squashy sausages that birds love to eat, or that humans love to spray with insecticide? The answer is yes!”

I just love secrets, especially of the insect variety.

This book reveals many aspects of the secretive lives of caterpillars as they journey to adulthood, the dangers they encounter and the strategies they use to outsmart their predators.

Written for the young and young at heart, the book contains a wealth of knowledge and displays the infinite patience and skill of the author and her obvious enjoyment and fascination with her subjects. It captures the stunningly beautiful, the delightfully humorous and the cunningly disguised – Creation at its ... well most gloriously creative!

Every page of this large (28.5 x 22 cm) glossy, hard cover, 48 page book is beautifully designed. The engaging narrative, complemented by the many superb photos illustrating the text, introduces the young reader to technical terms. A two page glossary expands on and more fully explains these terms. A list of scientific names of the moths and butterflies pictured follows an activities page.

Densey Clyne's work is already well known to many of us. Two of her previous books “Cicada Sing-Song” and “How to Attract Butterflies to your Garden” are publications we have enjoyed in the past, but this latest one is the best yet. Densey is an internationally known author, photographer and wildlife documentary producer and has received numerous awards. She is also a much valued member of BOIC and her article on the Mason Wasp in the June '09 issue of *Metamorphosis Australia* illustrates her considerable writing skills, superb photos and patient and dogged determination to uncover the secret lives of insects, all qualities which are apparent in her latest book.

Densey's own words are a fitting conclusion to this review. “Life after Life - What does the butterfly sipping nectar in the sunshine remember of its days as a flightless, leaf-munching caterpillar? Does a moth negotiating its scented flight path through the night recall its juvenile life earthbound among the leafy stems?



We may never know the answers to those questions. What we do know of the amazing double life of moths and butterflies is enough to surprise and delight those with the eyes to see and the patience to watch.”

This is a book to enjoy and treasure.

Available from BOIC for \$19.95 plus \$8 P&H

ERRATUM

In reviewing material for an article on the “Mysterious Cycad Blue Butterfly” in *Metamorphosis Australia* (No 53), I inadvertently overlooked an article by Dr. Don Sands, titled “Host Changes in the Lycaenid butterfly *Theclinessthes onycha onycha* (Hewitson): a possible preference shift?” published in Vol 35, issue 9, December 2007 *News Bulletin of the Entomological Society of Queensland Inc.* The original observations therein are important and I apologise to Don for this omission.

There is an abstracted version of Don’s paper in the miscellaneous notes section, Vol 35 part 2, of the *Australian Entomologist*.

John T. Moss

UNDER THE MICROSCOPE

Leaf-infesting Nematodes : **Bob Miller**

My neighbour is an avid orchid grower who puts on incredible displays in shopping centers all over Cairns. *Hypolycaena danis turneri* (The Orchid Flash) love his collection of tasty orchids!

Unfortunately one of his orchids looked like it was facing certain death. Its leaves were rotting and falling off, leaving a slimy mess in the pot, so he brought it over to me to see if I could help.

I immediately took the pot into my study and placed the orchid under the Butterfly and Other Invertebrates Club microscope. After a bit of searching and dismantling of the orchid, I noticed small white worm-like critters, fairly abundant around the base of the dead leaves, so I took a few photos of these for a positive identification.



Hypolycaena danis turneri



I informed the next door neighbour that it looked like he had an infestation of nematodes and emailed the photos to him. He quickly sent these off to be identified. The reply we received back from Tony Pattison, a nematologist from South Johnstone, stated that they are indeed nematodes. They are a species of *Aphelenchoides*, leaf-infesting nematodes, which are common in Australia on a wide range of plants.



Nematode on orchid



Close-up of nematode

Merging photos to improve “Depth of Field”

Upon taking multiple photos of butterfly eggs using the B.O.I.C. microscope camera setup, we noticed that they all come out with a very bad depth of field, making them unusable.

Example of trying to take a photo of a bunch of Varied Hairstreak (*Jalmenus inous*) eggs:



Before



After

Before: You notice that only a small proportion of the eggs are in focus.

After: With the help of a program called Helicon Focus we can merge a series of badly focused pictures to create one crystal clear image of essentially anything you wish.



YOU ASKED

Hi Daphne,

I was wondering if you might know of someone in the club who could help identify the wonderful creature that one of my friends had visit their house.

The beetle was found in the Tully area and we would really love to know a bit more about it. Please let me know if you need more information.

Regards, **Wendy Finlayson**

Photo Alex Tessier



Hi Derrick, Wendy & Daphne,

The photo is of a Cerambycidae (longicorn beetle), *Batocera frenchi* and is a fig borer as a larva. Normally you would need to be near a North Queensland rainforest to obtain this beetle. The adults (often 50 mm or so) will come to the milky exudate from the wound of a fig. Museum specimens often have the red spots on their elytra faded a little. The SEQ equivalent is *Batocera boisduvali*. These beetles can "bite" hard, as their tarsi (feet) are very capable of holding onto the target finger.

Best wishes, **Murdoch De Baar**

Question - The Mad Fan, correct name Grey Fantail (*Rhipidura fuliginos*), is often seen in our garden. I was never able to see what it was eating until this morning I could see small clouds of flying insects. I was able to capture two specimens with a small net. The pictures I have sent are of this insect, one taken through the eye piece of a microscope and the other straight macro. The insect is 4mm from the end of the abdomen to the tip of those feathery feelers. Unfortunately I was unable to take any pictures of the dorsum of the insect. It has to me, a remarkable appearance. Like a dragonfly, it has a long segmented abdomen with terminal claspers. The single pair of wings is dragonfly-like, but the second pair are reduced to small clubs. The feelers are moth-like. The eyes are large. The flight of this insect is very rapid and erratic and scaled up would equal the speed of any aircraft! – **Hilton Selvey**



Answer - They are male chironomid midges (Chironomidae). Many species of chironomid midges show "lekking" behaviour where males form large groups and wait for females to come and select them for mating. The behaviour also turns up in



other unrelated insects, such as many other flies, moths, ants, some heteropteran bugs, many aquatic insects (mayflies especially). – **Dave Britton**

Further from Hilton - Thank you for finding out the name of the tiny insect that so intrigues me. During the "lekking" behaviour, the insect flies in straight lines for about 10cm and then abruptly changes direction. To me it is astonishing that the Mad Fan can get enough energy from these tiny insects to replace the energy used in catching them plus their normal metabolic requirements.

BUTTERFLY AND OTHER INVERTEBRATES CLUB PROGRAMME

Walk in the Wallum with Swordgrass Browns

What: Walk in coastal heathland, through Swordgrass Brown Butterfly habitat, with possible light trapping in the evening

When: **Saturday, 10th October 2009, from 10 am**

Where: Beerwah and Landsborough. Meet at the corner of Steve Erwin Way (old Glasshouse Mountains Road) and Roys Road, Beerwah.

Bring: Water, hat, sunscreen, walking shoes, lunch and dinner if staying late

Contact: John Moss 3245 2997 Mobile (on the day) 0427 596753. It is essential to register if planning to attend

Planning and Management Meeting

What: Our planning meetings are informative and interesting. As well as planning our activities we share lots of information. All members are welcome as this activity is also a general meeting of members.

When: **Saturday, 14th November, 2009 from 1.30 pm**

Where: Alisha's Steward's home (directions supplied on R.S.V.P.)

R.S.V.P.: Alisha on 3275 1186 or Daphne on 3396 6334

Mt Glorious Biological Centre/Mt Glorious Rainforest Walk

What: A visit to the Mt Glorious Biological Centre, followed by lunch and a rainforest walk. Butterflies and stick insects are reared at the Biological Centre, and mounted insect specimens from throughout the world are on display. The visit will be followed by lunch at the Maiala picnic area, just past the Mt Glorious township. We can then take a walk through the subtropical rainforest - the Maiala Circuit is a 2km walk which takes approx. 1 hour to complete. There are additional walking tracks if people are interested in doing more.

PLEASE RSVP - we will contact the Biological Centre closer to the date to confirm numbers. If the Biological Centre visit is cancelled, lunch and the walk will still take place.

When: **10:30am, Saturday 28th November 2009.** Earlybirds are welcome to meet up for a coffee beforehand in a nearby cafe. RSVP for details.

Where: We'll meet at 10:30am in the carpark of the Maiala picnic area, part of D'Aguilar National Park, and head off to the Biological Centre. The picnic area is located on Mt Glorious Road (the main road), just out of Mt Glorious township. It will be signposted. It takes approx. 70 mins to drive there from Brisbane City. We'll return to the picnic area for lunch and a walk.

Bring: Lunch, snacks, water, hat, walking shoes. **PLEASE RSVP:** By **Monday 23rd**

November 2009 to Alisha Steward a.steward@griffith.edu.au 3275 1186 (home), 0402 091 863 (On the morning of the excursion I will have the mobile phone turned on).



DISCLAIMER

The magazine seeks to be as scientifically accurate as possible but the views, opinions and observations expressed are those of the authors. The magazine is a platform for people to express their views and observations. These are not necessarily those of the BOIC. If inaccuracies have inadvertently occurred and are brought to our attention we will seek to correct them in future editions. The Editor reserves the right to refuse to print any matter which is unsuitable, inappropriate or objectionable and to make nomenclature changes as appropriate.

ACKNOWLEDGMENTS

Producing this magazine is done with the efforts of:

- Those members who have sent in letters and articles
- Lois Hughes who provides illustrations including the cover
- Daphne Bowden who works on layout, production and distribution
- John Moss, Murdoch De Baar, Dr Chris Reid and Dr David Britton for scientific referencing and proof reading of various articles in this issue of the magazine
- Printing of this publication is proudly supported by Brisbane City Council



We would like to thank all these people for their contribution.

Dedicated to a better Brisbane

ARE YOU A MEMBER

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible. **Membership fees are \$25.00 for individuals, schools and organizations.** If you wish to pay electronically, the following information will assist you: BSB: **484-799**, Account No: **001227191**, Account name: **BOIC**, Bank: **Suncorp**, Reference: your membership no. and surname e.g. **234 Roberts**.

Butterfly and Other Invertebrates Club Inc.
PO Box 2113
RUNCORN Q. 4113

Next event – Walk in the Wallum with Swordgrass Browns, Saturday, 10th October, 2009 (See Programme for details)



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